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In the 24th Annual Report of the Fishery Board for Scotland, Dr. H. C. Williamson describes the small cod-fish, *Gadus minutus* and *Gadus esmarki*, and records two cases of hermaphroditism in the common cod-fish.

The fourth part of the Fishes of Japan by Otaki, Fujita and Higurashi appears with descriptions in English and Japanese and with excellent colored figures of the common 'Tai,' the "national fish" of Japan, (*Pagrus major*), of the Ayu (*Plecoglosmus altivelis*), next to the American Eulachon, the finest of all food-fishes, and other species of interest.

In the Zoological Series of the Field Columbian Museum, Dr. T. H. Bean publishes a catalogue of the Fishes of Bermuda. 261 species are recorded, many of the more rare forms being figured. The new species, previously described in the Proceedings of the Biological Society of Washington, vol. XIX, for 1906, are the following: *Hippocampus brunneus*, (= *H. hudsonius* Jordan & Evermann, not of DeKay), *Holocentrus meeki*, *Eupomacentrus chrysus*, *Iridio decoratus*, *Iridio meyeri*, *Iridio microstomus*, *Cryptotomus crassiceps*, *Monacanthus tuckeri*, *Rhinogobius mowbrayi*, *Labrisomus lentiginosus*, *Antennarius verrucosus*.

In the series of Occasional Papers of the Bernice Pauahi Museum at Honolulu Alvin Seale gives a list of "Fishes of the South Pacific" collected by him in the Marquesas, Tahiti, Solomon Islands, and elsewhere in the South Seas. Numerous new species are described, and illustrated in not very satisfactory fashion by photographs.

In the same series, William A. Bryan describes a few new or rare fishes from Honolulu.

In the Records of the Australian Museum, VI, 1906, Edgar R. Waite gives descriptions of Australian and Tasmanian fishes, and studies in Australian Sharks, with photographs of the egg cases of certain species.

In the Proceedings of the Biological Society of Washington, Hugh M. Smith and Alvin Seale describe a number of species from the Philippines, four species being new.

In the Bulletin of the Michigan Fish Commission, No. 8, Mr. Ellis L. Michael catalogs the fishes of Michigan, with reference to all Michigan notices of each species.

DAVID STARR JORDAN.

Nettling Hairs of the Brown-tail Moth.[1] — It is well known that

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[1] Tyzzer, E. E. The pathology of the brown-tail moth dermatitis. *Journ. of Med. Res.*, vol. 16, pp. 43–64.

certain barbed hairs from caterpillars of the brown-tail moth, when applied to the skin, may cause a severe inflammation. Dr. Tyzzer has found that these hairs occur over "two velvety brown spots which appear on the dorsal aspect of the fifth and sixth segments after the first molt." Similar spots are found after each succeeding molt up to the last two spring molts, when they appear on all segments from the fifth to the twelfth inclusive. At this time they occur also in relation with the lateral tubercles of the same segments, so that the caterpillar becomes much more poisonous than in its young stages. The tapering nettling hairs are inserted by their pointed ends into elevations upon the caterpillar; the barbs, which at intervals tend to encircle the hair, point outward. If these hairs, which are easily detached, are rubbed upon the skin they work their way inward, pointed end foremost. It was supposed that the irritation which followed was purely mechanical. Dr. Tyzzer has demonstrated a chemical poison in the following manner. If the hairs are placed in a drop of blood between a slide and cover glass, a modification of the red corpuscles takes place at the apex of the hair. There the rouleaux are broken up; the corpuscles shrink and become at first spiny, and then spherical. That this is not a physical phenomenon is shown by substituting hairs of similar shape from the tussock moth, when no reaction occurs. It is believed that a poisonous substance is emitted from the apex of the hair, although no pore is visible. If the hair is broken the reaction occurs about the fracture, but otherwise only at the pointed extremity. The poisonous substance is not destroyed by baking the hairs for one hour at 110° C, but is destroyed at 115°. In the latter case the hairs produce no dermatitis when applied to the skin, and no reaction in the drop of blood. The poison is insoluble in alcohol, acetone, chloroform, ether, acetic acid, and dilute hydrochloric acid. It appears, however, to dissolve in distilled water at 60° C, and a further chemical study is in progress.

In regard to animal coloration it may be noted that the caterpillars of the tussock moth, said to present 'warning colors,' have non-poisonous hairs; those of the Io moth, with a green 'protective coloration' are somewhat poisonous; and the poisonous brown-tail caterpillars have neither a warning nor a protective color. All three forms, moreover, are eaten by birds.

F. T. L.

Divided Eyes of Insects.— G. D. Shafer has studied the divided eyes in certain Odonata and Diptera [1] and has followed the late stages

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[1] Proc. Washington Academy of Science, 8, 1907.